

Patent Application of
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for

TITLE: PINE STRAW CLAW

Cross-Reference to Related Applications

Not Applicable

Federal R & D

Not Applicable

BACKGROUND - GENERAL

There are over 90 known species of pine trees. The leaves, or needles on these trees can vary in length from $1\frac{1}{2}$ inches to 18 inches, depending on the species. Pine tree leaves are commonly referred to as pine straw once they fall from a tree. Pine straw is extremely hearty and durable, often taking years to decompose. In suburban and rural areas where pine trees are plentiful, such as the Southeast, pine straw presents homeowners with a year-round problem. The problem arises after pine straw falls and gathers on roofs, causing mold and discoloration if not removed.

BACKGROUND - FIELD OF INVENTION

The Pine Straw Claw relates to roof maintenance, specifically to an improved method of removing pine straw and other species of leaves from roofs of houses.

BACKGROUND - DISCUSSION OF PRIOR ART

Homeowners have been dealing with this roof maintenance problem by: a) climbing up on a roof to remove pine straw and leaves with a leaf-rake or leaf-blower. This method is dangerous and can lead to serious personal injury.

b) or by hiring a local landscape or home maintenance service to do the job, usually at a cost of \$25 to \$100, depending on the amount of pine straw /leaves to be removed, and the pitch, height and size of a roof.

Both of the above methods require walking up, down and across the

surfaces of a roof which can cause shingles to loosen. Loose shingles can cause leaks and lead to the possibility of costly repairs both outside and inside a house.

Ordinary leaf-rakes have thin sharp tines designed to scrape along the ground as they gather and remove leaves. When used on a roof for this purpose these tines can cause damage to shingles.

There are two types of leaf-blowers. A more expensive gas-powered model with shoulder straps designed primarily for commercial use. And a less-expensive electric-powered model for home use. Electric models require a long power cord. When a homeowner carries an electric-powered leaf-blower onto a roof that person faces the added risk of tripping over a power cord while moving around.

Some homeowners choose to ignore the accumulation of pine straw and leaves on a roof. They may not want to risk climbing up and walking around on a roof. Or they may not want to spend the money to have a roof cleared. Such neglect, however, can lead to mold and roof discoloration. Over time this neglect can affect condition, appearance and value of a house. Service companies that powerwash or chemically clean stains from roofs charge hundreds of dollars for their work. Fees are based on amount of roof stain and discoloration, overall size of roof, height of roof and the degree of pitch on roof sections.

Our Preliminary Patent Search uncovered four (4) Patents:

#3,091,790	Issued to L.A.Schroeder	June 4,1963
#4,593,520	Issued to A.J.Krizman	June 10,1986
#4,791,780	Issued to D.X.Phillips	Dec. 20.1988
#6,018,894	Issued to S.P.Whitehead	Feb. 1 2000

Each of the above four Patents relate to a type of raking implement. Patent #4,593,520 was designed for use in raking and smoothing golf course sand traps. Patent #4,791,780 was designed for use by an operator standing on a newly-shingled roof to remove builder debris such as pieces of wood, scraps of torn or

PRIOR ART cōnt'd.

damaged shingles, tarpaper, nails etc. The remaining two (2) Patents #3,091,790 and #6,018,894 pertain to a shovel-like device designed to remove snow from roofs of houses. We are not aware of any similarity of function or purpose in these Patents to the function and purpose stated in our Patent Application.

Also in the realm of Prior Art we have visited many home improvement stores such as Home Depot - Lowe's - Wal-Mart - Ace Hardware and Grayco. During those visits we could not find any product resembling our invention, or any product designed for the purpose stated in our Patent Application.

OBJECTS & ADVANTAGES

The objective of our Pine Straw Claw device is to provide homeowners with a safer, easier way to remove pine straw and leaves from a roof. This device, when connected to a telescopic or other long pole has many advantages:

- a) provides a homeowner with the means to stand at ground level or on a ladder while removing pine straw/leaves from a roof
- b) minimizes or eliminates the need to risk climbing onto a roof to remove pine straw/leaves.
- c) minimizes or eliminates the need to walk on a roof to remove pine straw/leaves.
- d) provides a homeowner with access to v-shaped roof areas where two or more pitched roof sections meet. It is in these v-shaped areas where pine straw/leaves tend to gather and remain. Ordinary leaf-rakes are not effective in clearing these areas. The Pine Straw Claw's shape and flexibility were designed specifically to clear both v-shaped and flat roof areas of pine straw/leaves.
- e) periodic use of our device can save homeowners many hundreds of dollars in roof clearing and roof cleaning costs.
- f) homeowners have a vested interest in maintaining their residences. Pine straw and leaves that accumulate on a roof can, if not removed, shorten the life of a roof. Removing pine straw/leaves improves aesthetics, slows the formation of mold & stains, and permits a roof's drainage system to function properly.

DESCRIPTION

The Pine Straw Claw is a device fabricated of flexible, resilient lightweight material. This device has a central housing support structure 20 (FIGS.A,B,C,D,E). The central housing support structure 20 has two external side support walls 24a 24b (FIGS. A,B,C,E) and one curved front support wall 30 (FIGS.A,B,C,E). There are two interior latitudinal support walls 28a 28b (FIGS. A,B) and one interior longitudinal support wall 26 (FIGS.A,B,C). Within the central housing support structure 20 is a female flange fitting 22 (FIGS.A,B,C). Fitting 22, located at the back of the central housing support structure 20, accomodates a male threaded pole. The central housing support structure 20 is covered with a top surface plate 32 (FIGS.A,B,E). Extending from the front support wall face 34 of the central housing support structure 20 is a plurality of curved tines 2 - 18 (FIGS.A,B,C, D,E). The top surfaces of all tines 2 - 18 (FIGS.A,E) are smooth. The bottom surfaces of all tines 2 - 18 have a lower support ridge 2a - 18a (FIGS.B,C,E). These lower support ridges start at the front of the support wall face 34 (FIGS.B,E) and taper out to a point near the rounded tips of the tines. The center tine 10 is the longest tine. Tines 2 and 12 are equal in length and width. Tines 6 and 14 are equal in length and width. Tines 4 and 16 are equal in length and width. Tines 2 and 18 are equal in length and width. Tines 2 - 6 14 - 18 are all narrower than tines 8 - 12. The lower support ridges for all tines 2a - 18a start at the front support wall face 34 and taper to a point near the rounded tip of each tine. The depth of the lower support ridges of tines 8a - 12a are deeper at the front wall support face 34 (FIGS.C,B) than the lower support ridges of tines 2a - 6a 14a - 18a.

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THEORY OF OPERATION

We believe that the Pine Straw Claw employs a design feature and function that is unique. The tines of our device have been designed so that they function in a manner that allows them to adjust themselves to any v-shaped angle to be found in roof construction, as well as to any flat, horizontal roof plane.

OPERATION

The Pine Straw Claw is a device designed for use in conjunction with a lightweight telescopic or other long pole having a threaded male fitting at one end. The device has a female flange fitting 22 at the rear of the central housing support structure 20 to which a pole can be connected. Once attached to a pole the Pine Straw Claw is then extended to a roof to be cleared of pine straw and/or leaves. This clearing can be accomplished by a person standing at ground level, standing on a ladder, or standing on a roof. When the device is placed against a flat plane of a pitched roof the tines align on a horizontal plane to the roof surface. When the device is lowered into v-shaped angles where two roof planes meet the tines adjust and mold themselves to the contours of the angles. Tine 10, which is the longest tine, descends into the lowest part of the v-shaped angle. All other tines of our device are designed to flex and conform to the degree of pitch formed by roof angles. To complete the operation the user then draws the pole downward, gathering and tumbling the pine straw and leaves to and off the edge of a roof.

RAMIFICATIONS AND SCOPE

When used with a lightweight telescopic pole our Pine Straw Claw provides persons of almost any age with a safer, easier -to-use method of removing pine straw/leaves from rooftops. Very little physical strength or effort is required, making it possible for youngsters as well as elderly retirees to use our device. And the economies are considerable when compared to the cost of commercial roof maintenance services.

While our Pine Straw CLaw is designed primarily to remove pine straw/leaves from roofs of houses it can also be used effectively to remove other roof debris such as branches, pine cones etc.

We visualize a companion device or attachment that would protrude at right angles from a telescopic pole to assist the user in removing pine straw/leaves from behind chimneys and other large roof structures.

WE also visualize the possibility of our Pine Straw Claw being permanently attached to a telescopic or other long pole forming a single unit.

DESCRIPTION OF DRAWINGS

FIG.A . . . is a top plan view of the Pine Straw Claw showing the central housing support structure, underlying interior support walls, female flange fitting, and tines with underlying support ridges.

FIG.B . . . is a side view showing the interior support walls of the female flange fitting, the claw-like curvature of the tines, and the support ridges on the lower face of the tines.

FIG.C . . . is a bottom view showing the exterior and interior support walls of the central housing support structure and female flange fitting, plus the approximate length and width of the tines, with underlying support ridges.

FIG.D . . . shows only a front view of the rounded tip of each tine.

FIG.E . . . is a 3/4 overhead perspective drawing showing the central housing support structure and tines.

REFERENCE LETTERS & NUMERALS

FIG.A...Top View

FIG.B...Side View

FIG.C...Bottom View

FIG.D...Front View Showing Rounded Tips of Tines Only

FIG.E...Perspective View

#2 Tine

#2a Lower Support Structure

#4 Tine

#4a Lower Support Structure

#6 Tine

#6a Lower Support Structure

#8 Tine

#8a Lower Support Structure

#10 Tine

#10a Lower Support Structure

#12 Tine

#12a Lower Support Structure

#14 Tine

#14a Lower Support Structure

#16 Tine

#16a Lower Support Structure

#18 Tine

#18a Lower Support Structure

#20 Central Housing Support Structure

#22 Female Flange Fitting

#24a External Side Support Wall

#24b External Side Support Wall

#26 Interior Longitudinal Support Wall

#28a Interior Latitudinal Support Wall

#28b Interior Latitudinal Support Wall

#30 Curved Front Support Wall

#32 Top Surface Plate

#34 Front Face of Curved Front Support Wall

#36 Cross Section of Tine #18